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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

PHAM, HAI CHI

ART UNIT	PAPER NUMBER
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2861

DATE MAILED: 02/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/978,307

Applicant(s)

EUM ET AL.

Examiner

Hai C Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-15 is/are allowed.
- 6) ☒ Claim(s) 1-6, 17 and 20-22 is/are rejected.
- 7) ☒ Claim(s) 16, 18, 19, 23 and 24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Specification*

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 6, 17 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Oda et al. (U.S. 4,731,623).

Oda et al. discloses a laser scanning apparatus comprising a light source (laser scanning unit 20) which emits light, a rotary polygonal mirror (22) which reflects the light from the light source while being rotated, f- $\theta$  lenses (scanning lenses 24 and 43) which cause the light reflected by the rotary polygonal mirror to form a light spot on the photosensitive medium (7), a reflecting mirror (reflecting mirror 25 and/or 26), disposed

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on an optical path between the  $f-\theta$  lens (24) and the photosensitive medium, which directs the light spot toward the photosensitive medium, and a plate and a plate (44) having a slit (45, Fig. 5), the plate interposed between the photosensitive medium and the  $f-\theta$  lenses so that a scan line is formed uniformly by a portion of the light spot passing through the slit.

Oda et al. further teaches the plate (44) being disposed to be closer to the photosensitive medium (7) than to the reflecting mirror (25 or 26) (referring to claim 6), and wherein the predetermined path is bow shaped (the bending of the sagittal image plane being made to be zero at the surface of the photosensitive drum by adjusting the scanning angle  $\theta$ ).

5. Claims 17, 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Akanabe (JP 64-84217).

Akanabe discloses a laser scanner recorder comprising an optical system (scanning lens (9) which directs a light spot on a predetermined path toward a photosensitive medium (10), and a plate (11) having a slit (11a) interposed between the optical system and the photosensitive medium, the slit passing a portion of the light spot to uniformly form a scan line on the photosensitive medium.

Akanabe further teaches a ratio of a length of the light spot on the predetermined path to a length of the portion of the light spot passed to the photosensitive medium is greater than 1:1, where the lengths are measured transverse to a length of the slit (see Figs. 2 and 3).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Alternatively, claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akanabe in view of Oda et al.

Akanabe discloses a laser scanner recorder comprising a light source (laser light source 1) which emits light, a rotary polygonal mirror (8) which reflects the light from the light source while being rotated, f- $\theta$  lenses (9) which cause the light reflected by the rotary polygonal mirror to form a light spot on the photosensitive medium (10), and a plate (11) having a slit (11a), the plate interposed between the photosensitive medium and the f- $\theta$  lenses so that a scan line is formed uniformly by a portion of the light spot passing through the slit.

However, Akanabe fails to teach a reflecting mirror disposed on an optical path between the f- $\theta$  lenses and the photosensitive medium.

Regardless, Oda et al. discloses a laser scanning apparatus comprising a light source which emits light, a rotary polygonal mirror which reflects the light from the light source while being rotated, f- $\theta$  lenses which cause the light reflected by the rotary polygonal mirror to form a light spot on the photosensitive medium, a reflecting mirror (or folding mirrors 25 and 26), disposed on an optical path between the f- $\theta$  lens and the

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photosensitive medium, which directs the light spot toward the photosensitive medium, and a plate having a slit, wherein the folding mirrors (25 and 26) allows the housing of the optical scanning device to be build in a more compact manner.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the folding mirror as taught by Oda et al. in the device of Akanabe. The motivation for doing so would have been to provide a more compact housing for the optical scanning device.

Akanabe further teaches:

- (referring to claim 2) the slit having a length corresponding to a length of the scan line (see Abstract),
- (referring to claims 4 and 6) the plate (44) being disposed to be closer to the photosensitive medium (the slit plate being provided at a position adjacent to or being brought into contact with the photosensitive medium 10).

Although Akanabe teaches the width of the slit (11a) in the sub-scanning direction being set almost equal to the interval of the scanning line of the laser beam 2, Akanabe fails to teach such width being within a range including 225  $\mu\text{m}$  and 300  $\mu\text{m}$ . It would have been obvious to one having ordinary skill in the art at the time the invention was made to set the width of the slit in the sub-scanning direction to be within the claimed range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

8. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akanabe.

Although Akanabe teaches a ratio of a length of the light spot on the predetermined path to a length of the portion of the light spot passed to the photosensitive medium is greater than 1:1, where the lengths are measured transverse to a length of the slit, Akanabe fails to teach the ratio being about 4:1. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to set the above ratio at the claimed value, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

***Allowable Subject Matter***

9. Claims 7-14 are allowed.

10. Claims 16, 18-19 and 23-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is an examiner's statement of reasons for allowance: the primary reason for the indication of the allowability of the claimed invention, with respect to claims 7 and 19, is the inclusion of the limitation related to the position adjusting unit for adjusting the position of the slit, in the combination as currently claimed, and which is not found taught or fairly suggested by the prior arts made of record, considered alone or in combination.

The primary reason for the indication of the allowability of the claimed invention, with respect to claims 16, 18, is the inclusion of the limitation "wherein the plate comprises a transparent plate on which the slit is printed", in the combination as currently claimed, which is not found taught or fairly suggested by the prior arts made of record, considered alone or in combination.

The primary reason for the indication of the allowability of the claimed invention, with respect to claim 23, is the inclusion of the limitation "wherein a length of the light spot on the predetermined path is greater than or equal to a sum of an amount of bow in the predetermined path and a length of the portion of the light spot passing through the slit, where the lengths are measured transverse to a length of the slit", in the combination as currently claimed, which is not found taught or fairly suggested by the prior arts made of record, considered alone or in combination.

Claims 8-15 are allowed because they are directly/indirectly dependent from claim 7 above.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### ***Additional Prior Art***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.



Nakauchi (JP 61-102651) discloses a pattern printer using a slit plate having at least one slit whose length in the scanning direction is the same as the size of the image, and whose width as measured in the sub-scanning direction is set to a different value dependent on the density of the image.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (703) 308-1281. The examiner can normally be reached on T-F (8:30-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (703) 308-4896. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



HAI PHAM  
PRIMARY EXAMINER

February 3, 2004